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NEWS 2		"Ask CAS" for self-help around the clock
NEWS 3	Feb 24	PCTGEN now available on STN
NEWS 4	Feb 24	TEMA now available on STN
NEWS 5	Feb 26	NTIS now allows simultaneous left and right truncation
NEWS 6	Feb 26	PCTFULL now contains images
NEWS 7	Mar 04	SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 8	Mar 24	PATDPAFULL now available on STN
NEWS 9	Mar 24	Additional information for trade-named substances without structures available in REGISTRY
NEWS 10	Apr 11	Display formats in DGENE enhanced
NEWS 11	Apr 14	MEDLINE Reload
NEWS 12	Apr 17	Polymer searching in REGISTRY enhanced
NEWS 13	AUG 15	Indexing from 1937 to 1946 added to records in CA/CAPLUS
NEWS 14	Apr 21	New current-awareness alert (SDI) frequency in WPIDS/WPINDEX/WPIX
NEWS 15	Apr 28	RDISCLOSURE now available on STN
NEWS 16	May 05	Pharmacokinetic information and systematic chemical names added to PHAR
NEWS 17	May 15	MEDLINE file segment of TOXCENTER reloaded
NEWS 18	May 15	Supporter information for ENCOMPPAT and ENCOMPLIT updated
NEWS 19	May 19	Simultaneous left and right truncation added to WSCA
NEWS 20	May 19	RAPRA enhanced with new search field, simultaneous left and right truncation
NEWS 21	Jun 06	Simultaneous left and right truncation added to CBNB
NEWS 22	Jun 06	PASCAL enhanced with additional data
NEWS 23	Jun 20	2003 edition of the FSTA Thesaurus is now available
NEWS 24	Jun 25	HSDB has been reloaded
NEWS 25	Jul 16	Data from 1960-1976 added to RDISCLOSURE
NEWS 26	Jul 21	Identification of STN records implemented
NEWS 27	Jul 21	Polymer class term count added to REGISTRY
NEWS 28	Jul 22	INPADOC: Basic index (/BI) enhanced; Simultaneous Left and Right Truncation available
NEWS 29	AUG 05	New pricing for EUROPATFULL and PCTFULL effective August 1, 2003
NEWS 30	AUG 13	Field Availability (/FA) field enhanced in BEILSTEIN
NEWS 31	AUG 15	PATDPAFULL: one FREE connect hour, per account, in September 2003
NEWS 32	AUG 15	PCTGEN: one FREE connect hour, per account, in September 2003
NEWS 33	AUG 15	RDISCLOSURE: one FREE connect hour, per account, in September 2003
NEWS 34	AUG 15	TEMA: one FREE connect hour, per account, in September 2003
NEWS 35	AUG 18	Data available for download as a PDF in RDISCLOSURE
NEWS 36	AUG 18	Simultaneous left and right truncation added to PASCAL
NEWS 37	AUG 18	FROSTI and KOSMET enhanced with Simultaneous Left and Right Truncation

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NEWS 38  AUG 18  Simultaneous left and right truncation added to ANABSTR

NEWS EXPRESS  April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT
              MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP),
              AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003
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NEWS INTER    General Internet Information
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FILE 'HOME' ENTERED AT 18:23:02 ON 19 AUG 2003

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FILE 'BIOSIS' ENTERED AT 18:23:35 ON 19 AUG 2003
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=> s DNA encoding water channel protein
   5 FILES SEARCHED...
L1             0 DNA ENCODING WATER CHANNEL PROTEIN

=> s water channel protein
L2          1616 WATER CHANNEL PROTEIN
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=> s l2 and DNA
L3          1064 L2 AND DNA

=> s l3 and sequence
L4          1041 L3 AND SEQUENCE

=> s l4 and aquapolin
L5             1 L4 AND AQUAPOLIN

=> d l5 ti abs ibib tot

L5   ANSWER 1 OF 1  BIOSIS  COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
TI   Molecular cloning and expression of aquapolin 1 (AQP1) in dog
     kidney and erythroblasts.
AB   Complementary DNA of the water channel aquapolin 1
     (AQP1) was cloned from dog kidney and erythroblasts. The cDNA amplified
     from mRNA in dog kidney was 816 bp, the same as that in bovines, but
     longer by 6 bp than that in humans, mice and rats. The 235-bp fragment
     cDNA amplified from the mRNA in dog erythroblasts, which was
     differentiated from peripheral blood, was completely identical to the
     corresponding sequence of cDNA from the dog kidney. Thus, mature
     red blood cells from dog may have AQP1 in their cell membranes. The amino
     acid sequence in dog AQP1 was 91-94% identical to that in the
     other species mentioned above. Dog AQP1 has six predicted transmembrane
     domains, two NPA motifs, one mercury-sensitive site and four consensus
     phosphorylation sites, the same as the other species. However, dog and
     bovine AQP1 have only one N-glycosylation site, while two glycosylation
     sites were found in human and rodent AQP1. Xenopus oocytes injected with
     the mRNA of the dog AQP1 exhibited high water permeability in a hyposmotic
     medium. Thus, dog AQP1 performs water transport the same as in the other
     species.
ACCESSION NUMBER:    2000:226999  BIOSIS
DOCUMENT NUMBER:     PREV200000226999
TITLE:               Molecular cloning and expression of aquapolin 1
                     (AQP1) in dog kidney and erythroblasts.
AUTHOR(S):           Higa, Kazunari; Ochiai, Hideharu; Fujise, Hiroshi (1)
CORPORATE SOURCE:    (1) Laboratory of Pathobiochemistry, School of Veterinary
                     Medicine, Azabu University, Fuchinobe, Sagamihara,
                     Kanagawa, 229-8501 Japan
SOURCE:              Biochimica et Biophysica Acta, (Feb. 15, 2000) Vol. 1463,
                     No. 2, pp. 374-382.
                     ISSN: 0006-3002.
DOCUMENT TYPE:       Article
LANGUAGE:            English
SUMMARY LANGUAGE:    English


=> d his

     (FILE 'HOME' ENTERED AT 18:23:02 ON 19 AUG 2003)

     FILE 'MEDLINE, USPATFULL, DGENE, EMBASE, WPIDS, FSTA, JAPIO, HCAPLUS,
     BIOSIS' ENTERED AT 18:23:35 ON 19 AUG 2003
L1             0 S DNA ENCODING WATER CHANNEL PROTEIN
L2          1616 S WATER CHANNEL PROTEIN
L3          1064 S L2 AND DNA
L4          1041 S L3 AND SEQUENCE
L5             1 S L4 AND AQUAPOLIN

=> d l4 ti abs ibib 1-10

L4   ANSWER 1 OF 1041     MEDLINE on STN
TI   Molecular and cellular characterization of a water-
     channel protein, AQP-h3, specifically expressed in the
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frog ventral skin.

AB Two cDNAs encoding frog aquaporin (AQP) were cloned from a cDNA library constructed for the ventral skin of the tree frog, Hyla japonica and sequenced. One AQP (Hyla AQP-h1) consisted of 271 amino-acid residues with high homology to toad AQP-t1, Rana CHIP28 (AQP1), and rat AQP1. The other AQP (AQP-h3) consisted of 271 amino-acid residues with higher homology to mammalian AQP2 than to mammalian AQP3. The predicted amino-acid **sequence** contained the conserved two NPA motifs found in all MIP family members and the putative six transmembrane domains. The **sequence** also confers mercurial sensitivity, which is common to all the AQPs except AQP0, AQP4 and AQP7. Potential N-glycosylation sites were present at Asn-44 in AQP-h1, and at Asn-124 and Asn-125 in AQP-h3. In addition, AQP-h3 had a putative phosphorylation site by protein kinase A at Ser-255, which is identical to mammalian AQP2. In swelling assays using Xenopus oocytes, AQP-h1 facilitates water permeability, whereas AQP-h3 displayed weak water permeability. Searching for the expression of these two AQP mRNAs revealed that AQP-h1 was expressed in most tissues, whereas AQP-h3 was observed only in the ventral skin. An antibody (ST-141) against the C-terminal peptide of the AQP-h3 protein recognized a 29.0 kDa-protein with a molecular mass close to that of the Hyla AQP-h3 protein and immunostained predominantly in the abdominal pelvic skin. In pelvic skin, the label for AQP-h3 was more intense in the upper layer of the stratum granulosum and was localized to both the apical and basolateral plasma membranes of the principal cells. These findings suggest that Hyla AQP-h3 plays a pivotal role in constitutively absorbing water from ventral pelvic skin.

ACCESSION NUMBER: 2002416196 MEDLINE
DOCUMENT NUMBER: 22162707 PubMed ID: 12172646
TITLE: Molecular and cellular characterization of a **water -channel protein**, AQP-h3, specifically expressed in the frog ventral skin.
AUTHOR: Tanii H; Hasegawa T; Hirakawa N; Suzuki M; Tanaka S
CORPORATE SOURCE: Department of Biology, Faculty of Science, Shizuoka University, Ohya 836, Shizuoka 422-8529, Japan.
SOURCE: JOURNAL OF MEMBRANE BIOLOGY, (2002 Jul 1) 188 (1) 43-53. Journal code: 0211301. ISSN: 0022-2631.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200301
ENTRY DATE: Entered STN: 20020813
Last Updated on STN: 20030123
Entered Medline: 20030122

L4 ANSWER 2 OF 1041 MEDLINE on STN

TI A functional **water channel protein** in the pathogenic bacterium Brucella abortus.

AB The gene for a new bacterial aquaporin, AqpX, was cloned from the pathogenic Gram-negative bacterium BRUCELLA: abortus. The gene was mapped on the large chromosome of B. abortus. It is flanked by one upstream and two downstream copies of the BRUCELLA: repeated **sequence** Bru-RS. Prediction from the nucleotide **sequence** indicated that the protein is a member of the MIP family, which comprises channels for water and/or solute transport. Expression in XENOPUS: oocytes and cryoelectron microscopy of Escherichia coli cells transformed with the aqpX gene confirmed that the protein is an efficient water channel. Glycerol uptake experiments in E. coli also showed that the protein is not able to transport glycerol.

ACCESSION NUMBER: 2001115902 MEDLINE
DOCUMENT NUMBER: 20553188 PubMed ID: 11101683
TITLE: A functional **water channel protein** in the pathogenic bacterium Brucella abortus.

AUTHOR: Rodriguez M C; Froger A; Rolland J P; Thomas D; Aguero J; Delamarche C; Garcia-Lobo J M
CORPORATE SOURCE: Departamento de Biologia Molecular, Facultad de Medicina, Universidad de Cantabria, Unidad asociada al Centro de Investigaciones Biologicas, CSIC, Cardenal Herrera Oria s/n, 39011 Santander, Spain.
SOURCE: MICROBIOLOGY, (2000 Dec) 146 Pt 12 3251-7. Journal code: 9430468. ISSN: 1350-0872.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AF148066
ENTRY MONTH: 200102
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010215

L4 ANSWER 3 OF 1041 MEDLINE on STN
TI Cloning of an aquaporin-like cDNA and in situ hybridization in adults of the mosquito Aedes aegypti (Diptera: Culicidae).
AB A cDNA encoding a putative **water channel protein**, aquaporin, was cloned from a cDNA library of Aedes aegypti Malpighian tubules. The cDNA encodes a 26.11 kDa protein similar to insect aquaporins from Haematobia irritans exigua (Diptera) and Cicadella viridis (Homoptera), and to mammalian aquaporin 4. Localization of the messenger RNA (mRNA) was performed by in situ hybridization of Malpighian tubules and analysed by fluorescence and confocal microscopy. The mRNA was localized in tracheolar cells associated with the Malpighian tubules. No signal was detected in the Malpighian tubule epithelium. The molecular mechanisms for water movement between tissues and tracheoles are not yet elucidated in insects. Our results suggest a model to explain fluid movements in tracheoles during insect respiration.
ACCESSION NUMBER: 2001009930 MEDLINE
DOCUMENT NUMBER: 20428297 PubMed ID: 10971718
TITLE: Cloning of an aquaporin-like cDNA and in situ hybridization in adults of the mosquito Aedes aegypti (Diptera: Culicidae).
AUTHOR: Pietrantonio P V; Jagge C; Keeley L L; Ross L S
CORPORATE SOURCE: Department of Entomology, Texas A & M University, College Station, TX 77843-2475, USA.. p-pietrantonio@tamu.edu
CONTRACT NUMBER: 446191
SOURCE: INSECT MOLECULAR BIOLOGY, (2000 Aug) 9 (4) 407-18. Journal code: 9303579. ISSN: 0962-1075.
PUB. COUNTRY: ENGLAND: United Kingdom
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200010
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001026

L4 ANSWER 4 OF 1041 MEDLINE on STN
TI Differential regulation of rat aquaporin-5 promoter/enhancer activities in lung and salivary epithelial cells.
AB Aquaporin-5 (AQP5) is a **water channel protein** that is selectively expressed in respiratory, salivary, and lacrimal tissues. In order to establish the tissue-specific transcriptional programs that underlie its lung- and salivary-specific expression, a 4.5-kilobase pair **DNA** fragment encompassing the 5'-flanking region of the rat AQP5 gene has been characterized in detail. A major transcription start site utilized in lung and salivary glands has been localized downstream of a TATAA-like motif. Transient transfection assays

of -4.3- and -1.7-AQP5-luciferase constructs in AQP5-expressing lung (MLE-15) and salivary (Pa-4) cells and nonexpressing fibroblast (NIH3T3) and epithelial (HeLa) cells demonstrate preferential transcriptional enhancement of reporter activities in MLE-15 and Pa-4 cells. Transient transfection assays of a series of 5' --> 3' deletion constructs of -4.3-AQP5-luciferase suggest that a common salivary and lung enhancer is located between nucleotides -274 and -139, and a lung-specific enhancer is located between nucleotides -894 and -710. There is one putative lung-specific repressor located in the region of nucleotides -1003/-894 and a common lung and salivary repressor located at nucleotides -503/-385. Moreover, 3' --> 5' deletions up to -171 and -127 base pairs almost abolish transcriptional activation in salivary and lung cells, respectively. Together, our findings indicate that the combination of enhancer/repressor elements within the proximal 5'-flanking region of rat AQP5 gene dictates its restricted expression in both lung and salivary cells.

ACCESSION NUMBER: 2000458614 MEDLINE
DOCUMENT NUMBER: 20409006 PubMed ID: 10849430
TITLE: Differential regulation of rat aquaporin-5 promoter/enhancer activities in lung and salivary epithelial cells.
AUTHOR: Borok Z; Li X; Fernandes V F; Zhou B; Ann D K; Crandall E D
CORPORATE SOURCE: Division of Pulmonary and Critical Care Medicine, Department of Medicine, Will Rogers Institute Pulmonary Research Center, Los Angeles, CA 90033, USA.. zborok@hsc.usc.edu
CONTRACT NUMBER: DE 10742 (NIDCR)
HL38578 (NHLBI)
HL38621 (NHLBI)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Aug 25) 275 (34) 26507-14.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20001005
Last Updated on STN: 20001005
Entered Medline: 20000925

L4 ANSWER 5 OF 1041 MEDLINE on STN
TI Rapid stalk elongation in tulip (Tulipa gesneriana L. cv. Apeldoorn) and the combined action of cold-induced invertase and the **water-channel protein** gammaTIP.
AB Many bulbous plants need a low-temperature treatment for flowering. Cold, for example, affects the elongation of the stalk, thereby influencing the quality of the cut flower. How the elongation of the stalk is promoted by cold and which physiological and biochemical mechanisms are involved have remained obscure. As invertase has been shown to be involved in the cold-induced elongation of the flower stalks of tulips (Lambrechts et al., 1994, Plant Physiol 104: 515-520), we further characterized this enzyme by cloning the cDNA and analysing its expression in various tissues of the tulip (Tulipa gesneriana L. cv. Apeldoorn) stalk. In addition, the role of sucrose synthase was investigated. Since turgor pressure is an important force driving cell elongation, the role of a **water-channel protein** (gammaTIP) was studied in relation to these two enzymes. The mRNA level of the invertase found was substantially up-regulated as a result of cold treatment. Analysis of the amino acid **sequence** of this invertase revealed the presence of a vacuolar targeting signal. Two different forms of sucrose synthase were found, the expression of one of them appeared to be restricted to the vascular tissue while the other form was present in the surrounding tissue. Both sucrose synthases were present in the stalk during the

entire period of bulb storage and after planting, but their activities declined during stalk elongation. The expression of the gammaTIP gene was restricted mainly to the vascular tissue and its expression profile was identical to that of invertase. Simultaneous expression of invertase and gammaTIP possibly leads to an increase in osmotic potential and vacuolar water uptake, thus providing a driving force for stretching the stalk cells.

ACCESSION NUMBER: 1999431723 MEDLINE
DOCUMENT NUMBER: 99431723 PubMed ID: 10502102
TITLE: Rapid stalk elongation in tulip (Tulipa gesneriana L. cv. Apeldoorn) and the combined action of cold-induced invertase and the **water-channel protein** gammaTIP.
AUTHOR: Balk P A; de Boer A D
CORPORATE SOURCE: Agrotechnological Research Institute, Department of Molecular Regulation and Plant Quality, Bornsesteeg 59, P.O. Box 17, 6700 AA Wageningen, The Netherlands.
SOURCE: PLANTA, (1999 Sep) 209 (3) 346-54.
Journal code: 1250576. ISSN: 0032-0935.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-X95650; GENBANK-X95651; GENBANK-X96938; GENBANK-X96939; GENBANK-X97642; GENBANK-X97643
ENTRY MONTH: 199911
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991130

L4 ANSWER 6 OF 1041 MEDLINE on STN
TI Cloning and chromosomal localization of mouse aquaporin 4: exclusion of a candidate mutant phenotype, ataxia.
AB Aquaporin-4 is a mammalian **water channel protein** that is predominately expressed in brain, where it is believed to mediate water homeostasis. Here we report the isolation and characterization of the cDNA for mouse Aqp4 and map the gene to the proximal region of mouse chromosome 18. This region contains the neurological mutation ataxia, but further analysis reveals that Aqp4 is not responsible for the ataxia phenotype.

ACCESSION NUMBER: 97288526 MEDLINE
DOCUMENT NUMBER: 97288526 PubMed ID: 9143504
TITLE: Cloning and chromosomal localization of mouse aquaporin 4: exclusion of a candidate mutant phenotype, ataxia.
AUTHOR: Turtzo L C; Lee M D; Lu M; Smith B L; Copeland N G; Gilbert D J; Jenkins N A; Agre P
CORPORATE SOURCE: Department of Biological Chemistry, Johns Hopkins University School of Medicine, Baltimore, Maryland 21205-2185, USA.
CONTRACT NUMBER: GM07309 (NIGMS)
HL3391 (NHLBI)
HL48268 (NHLBI)
SOURCE: GENOMICS, (1997 Apr 15) 41 (2) 267-70.
Journal code: 8800135. ISSN: 0888-7543.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U88623
ENTRY MONTH: 199707
ENTRY DATE: Entered STN: 19970805
Last Updated on STN: 19970805
Entered Medline: 19970718

L4 ANSWER 7 OF 1041 MEDLINE on STN

TI The human AQP4 gene: definition of the locus encoding two water channel polypeptides in brain.

AB The aquaporin family of membrane water transport proteins are expressed in diverse tissues, and in brain the predominant **water channel protein** is AQP4. Here we report the isolation and characterization of the human AQP4 cDNAs and genomic **DNA**. Two cDNAs were isolated corresponding to the two initiating methionines (M1 in a 323-aa polypeptide and M23 in a 301-aa polypeptide) previously identified in rat [Jung, J.S., Bhat, R.V., Preston, G.M., Guggino, W.B. & Agre, P. (1994) Proc. Natl. Acad. Sci. USA 91, 13052-13056]. Similar to other aquaporins, the AQP4 gene is composed of four exons encoding 127, 55, 27, and 92 amino acids separated by introns of 0.8, 0.3, and 5.2 kb. Unlike other aquaporins, an alternative coding initiation **sequence** (designated exon 0) was located 2.7 kb upstream of exon 1. When spliced together, M1 and the subsequent 10 amino acids are encoded by exon 0; the next 11 amino acids and M23 are encoded by exon 1. Transcription initiation sites have been mapped in the proximal promoters of exons 0 and 1. RNase protection revealed distinct transcripts corresponding to M1 and M23 mRNAs, and AQP4 immunoblots of cerebellum demonstrated reactive polypeptides of 31 and 34 kDa. Using a P1 and a lambda EMBL subclone, the chromosomal site of the human AQP4 gene was mapped to chromosome 18 at the junction of q11.2 and q12.1 by fluorescence in situ hybridization. These studies may now permit molecular characterization of AQP4 during human development and in clinical disorders.

ACCESSION NUMBER: 97008105 MEDLINE
DOCUMENT NUMBER: 97008105 PubMed ID: 8855281
TITLE: The human AQP4 gene: definition of the locus encoding two water channel polypeptides in brain.
AUTHOR: Lu M; Lee M D; Smith B L; Jung J S; Agre P; Verdijk M A; Merkx G; Rijss J P; Deen P M
CORPORATE SOURCE: Department of Biological Chemistry, Johns Hopkins University School of Medicine, Baltimore, MD 21205-2185, USA.
CONTRACT NUMBER: EY11239 (NEI)
HL33991 (NHLBI)
HL48268 (NHLBI)
+
SOURCE: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1996 Oct 1) 93 (20) 10908-12. Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U63611; GENBANK-U63612; GENBANK-U63613; GENBANK-U63614; GENBANK-U63615; GENBANK-U63616; GENBANK-U63617; GENBANK-U63618; GENBANK-U63619; GENBANK-U63620; GENBANK-U63621; GENBANK-U63622; GENBANK-U63623
ENTRY MONTH: 199611
ENTRY DATE: Entered STN: 19961219
Last Updated on STN: 19961219
Entered Medline: 19961125

L4 ANSWER 8 OF 1041 MEDLINE on STN

TI A water channel closely related to rat brain aquaporin 4 is expressed in acid- and pepsinogen-secretory cells of human stomach.

AB We isolated a cDNA clone encoding a **water channel protein**, aquaporin (AQP), from human stomach. The encoded protein consisted of 323 amino acid residues, containing six putative transmembrane domains. The protein was designated human aquaporin 4 (hAQP4) because of its 94% **sequence** similarity to rat brain AQP4. Expression of hAQP4 cRNA in Xenopus oocytes resulted in a

significant increase in osmotic water permeability, indicating that this protein functions as a water channel. Northern blot analysis demonstrated a strong signal of hAQP4 mRNA in brain, lung, and skeletal muscle as well as in stomach. Immunohistochemical experiments with human stomach tissues showed that hAQP4 as a protein is expressed mainly in cells located in the glandular portion of the fundic mucosa. These include chief cells which secrete pepsinogen and parietal cells which secrete hydrochloric acid. These results strongly indicate that hAQP4 is a principal factor involved in the osmotic regulation of pepsinogen and acid secretion in the stomach.

ACCESSION NUMBER: 96176324 MEDLINE
DOCUMENT NUMBER: 96176324 PubMed ID: 8601457
TITLE: A water channel closely related to rat brain aquaporin 4 is expressed in acid- and pepsinogen-secretory cells of human stomach.
AUTHOR: Misaka T; Abe K; Iwabuchi K; Kusakabe Y; Ichinose M; Miki K; Emori Y; Arai S
CORPORATE SOURCE: Department of Applied Biological Chemistry, Division of Agriculture and Agricultural Life Sciences, The University of Tokyo, Japan.
SOURCE: FEBS LETTERS, (1996 Mar 4) 381 (3) 208-12.
Journal code: 0155157. ISSN: 0014-5793.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-D63412
ENTRY MONTH: 199605
ENTRY DATE: Entered STN: 19960517
Last Updated on STN: 19990129
Entered Medline: 19960503

L4 ANSWER 9 OF 1041 MEDLINE on STN
TI Nucleotide **sequence** of a cDNA for a **water channel protein** (aquaporin) homolog from Atriplex canescens (Pursh.) Nutt.

ACCESSION NUMBER: 95357416 MEDLINE
DOCUMENT NUMBER: 95357416 PubMed ID: 7543207
TITLE: Nucleotide **sequence** of a cDNA for a **water channel protein** (aquaporin) homolog from Atriplex canescens (Pursh.) Nutt.
AUTHOR: Cairney J; Newton R J; Funkhouser E A; Chang S; Hayes D
CORPORATE SOURCE: Institute of Paper Science and Technology, Department of Forest Biology, Atlanta 30318-5794, USA.
SOURCE: PLANT PHYSIOLOGY, (1995 Jul) 108 (3) 1291-2.
Journal code: 0401224. ISSN: 0032-0889.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U18403
ENTRY MONTH: 199509
ENTRY DATE: Entered STN: 19950921
Last Updated on STN: 19960129
Entered Medline: 19950905

L4 ANSWER 10 OF 1041 MEDLINE on STN
TI cAMP-dependent phosphorylation stimulates water permeability of aquaporin-collecting duct **water channel protein** expressed in Xenopus oocytes.
AB Among water channel proteins (aquaporins), aquaporin-collecting duct (AQP-CD) is the vasopressin-regulated water channel. Vasopressin causes cAMP production in the renal collecting duct cells, and this is believed to lead to exocytic insertion of water channel into the apical membrane (shuttle hypothesis). AQP-CD contains a consensus **sequence** for

cAMP-dependent protein kinase, residues at positions 253-256 (Arg-Arg-Gln-Ser). To determine the role of this site, Ser-256 was substituted for Ala, Leu, Thr, Asp, or Glu by site-directed mutagenesis. In Xenopus oocytes injected with wild-type or mutated AQP-CD cRNAs, osmotic water permeability (Pf) was 4.8-7.7 times higher than Pf of water-injected oocytes. Incubation with cAMP plus forskolin or direct cAMP injection into the oocytes increased Pf of wild-type, but not mutated, AQP-CD-expressing oocytes, whereas the amounts of AQP-CD expression were similar in wild and mutated types as identified by Western blot analysis. In vitro phosphorylation studies of AQP-CD proteins expressed in oocyte showed that cAMP-dependent protein kinase phosphorylated wild-type, but not mutated, AQP-CD proteins. Phosphoamino acid analysis revealed that this phosphorylation occurred at the serine residue. Moreover, phosphorylation of AQP-CD protein in intact rat kidney medulla tissues was stimulated by incubation with cAMP. Our data suggest that cAMP stimulates water permeability of AQP-CD by phosphorylation. This process may contribute to the vasopressin-regulated water permeability of collecting duct in addition to the apical insertion of AQP-CD by exocytosis.

ACCESSION NUMBER: 95256192 MEDLINE
DOCUMENT NUMBER: 95256192 PubMed ID: 7537730

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SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1995 May 5) 270 (18) 10384-7.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199506
ENTRY DATE: Entered STN: 19950615
Last Updated on STN: 19980206
Entered Medline: 19950605